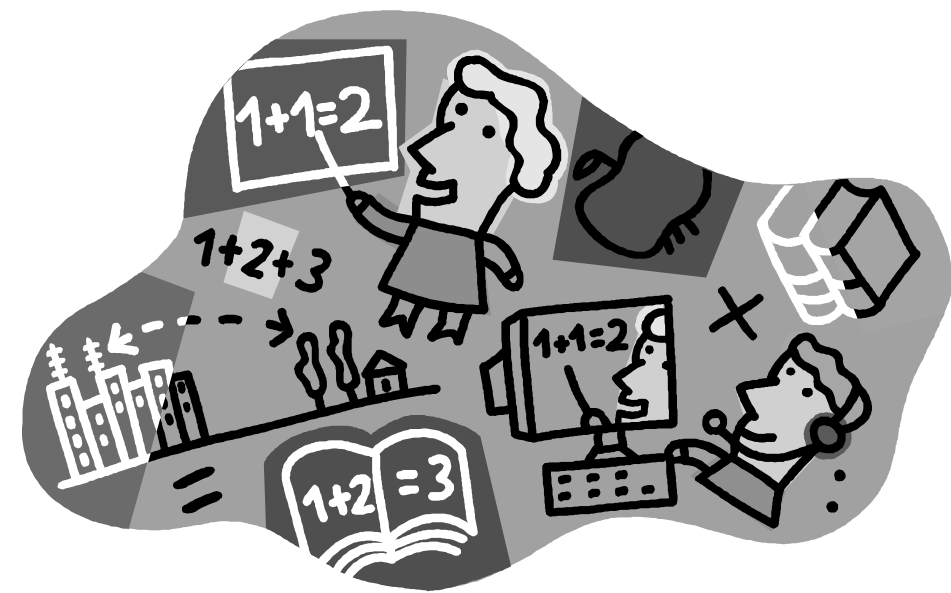




# Key Stage Two

## Calculation Methods



**Hordle CofE Primary**

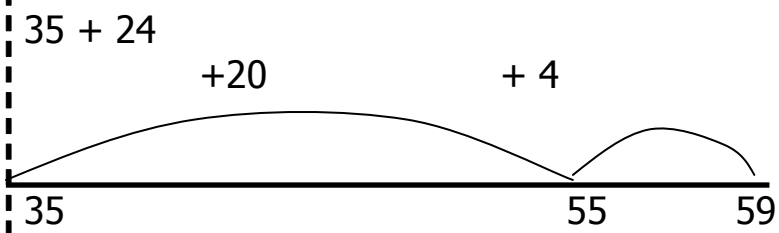
This booklet contains a progression of the calculation methods that are taught in the Juniors.

This should help you in supporting your child's learning at home. However, your child knows which methods they have been learning and should be able to explain them to you too.

Should you have any questions or require further help in how to support your child's Maths work, please do not hesitate to contact either your class teacher or Mrs Phillips, KS2 Maths Manager.

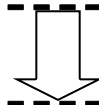
# Addition

## Number line — partition smaller number to add



To do this method you must be able to:

- partition numbers ie know the value of each digit in a number
- count in tens to be able to add multiples of ten



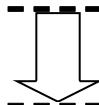
## Partitioning methods

$358 + 73 = 431$

$$\begin{array}{r} 300 + 50 + 8 \\ + \quad 70 + 3 \\ \hline 300 + 120 + 11 = 431 \end{array}$$

or

$$\begin{array}{r} 358 \\ + \quad 73 \\ \hline 11 \\ 120 \\ \hline 300 \\ \hline 431 \end{array}$$



## Column addition

$$\begin{array}{r} 1 \\ 456 \\ + 273 \\ \hline 729 \end{array}$$

Carried digits can be put above (particularly helpful if you forget them!) or below.

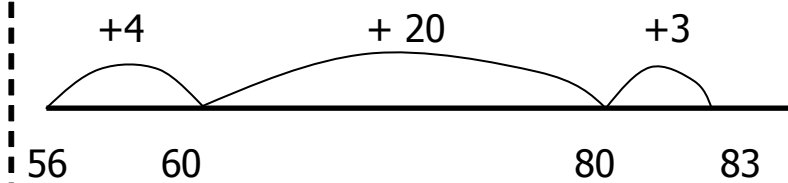
$$\begin{array}{r} 124.90 \\ + 117.25 \\ \hline 242.15 \\ \hline 11 \end{array}$$

Add in a zero to keep the place value.

# Subtraction

## Number line — complimentary addition

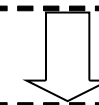
$83 - 56 = 27$



To find the answer, add the value of the jumps starting with the multiples of ten ie  $20 + 4 + 3$ .

To do this method you must be able to:

- bridge to ten ie know all pairs of numbers that make 10
- count in tens to be able to add multiples of ten



## Partitioning method

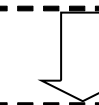
$92 - 38$

$$\begin{array}{r} 90 + 2 \\ - 30 + 8 \\ \hline 60 + 10 \\ \hline 70 + 2 \end{array} \quad \begin{array}{r} 80 + 12 \\ - 30 + 8 \\ \hline 50 + 4 \end{array}$$

You cannot take 8 from 2 so you need to take a ten from the tens column and add to the unit.

To do this method you must be able to:

- partition numbers in different ways ie 92 can be  $90 + 2$  but also  $80 + 12$ .



## Column subtraction

$$\begin{array}{r} 8 \quad 12 \\ \cancel{9} \quad 2 \\ - \quad 38 \\ \hline 54 \end{array}$$

$$\begin{array}{r} 2 \quad 14 \quad 12 \\ \cancel{2} \quad \cancel{5} \quad 2 \\ - \quad 178 \\ \hline 174 \end{array}$$

# Multiplication

## The Grid Method

$23 \times 7 = 161$

X	20	3
7	140	21

$123 \times 3 = 369$

X	100	20	3
3	300	60	9

$372 \times 24 =$

X	300	70	2
20	6000	1400	40
4	1200	280	8

$+ \begin{array}{r} 7440 \\ 1488 \\ \hline 8928 \end{array}$

$7.2 \times 3.8$

x	7	0.2
3	21	0.6
0.8	5.6	0.16

$+ \begin{array}{r} 21.60 \\ 5.76 \\ \hline 27.36 \end{array}$

You will need to use your addition method here to find the answer.

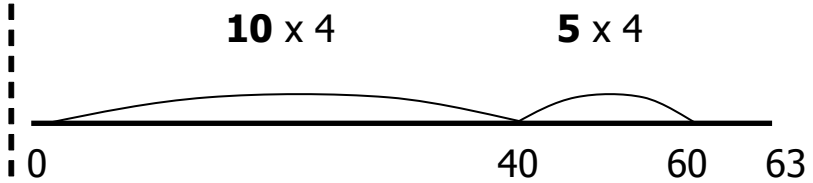
To do this method you must:

- be able to partition numbers ie know the value of each digit in a number
- know your multiplication tables (at first you will multiply by 2,3,4 and 5 only)

# Division

## Number line

$63 \div 4 = 15 \text{ r}3$

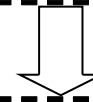


Total the value of the jumps ie one large jump of 10 lots of 4 plus a jump of 5 lots of 4 equals 15.

Because  $63 = (10 \times 4) + (5 \times 4) + 3$

To do this method you must:

- know your multiplication tables (at first you will multiply by 2,3,4 and 5 only) and be able to multiply by multiples of ten (and a hundred later).

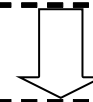


## Chunking vertically

$146 \div 8 = 18 \text{ r}2$

8	146	
	- 80	<b>10 x 8</b>
	66	
	- 40	<b>5 x 8</b>
	26	
	- 24	<b>3 x 8</b>
	2	

Total the value of the chunks ie 10, 5 and 3 lots of 8 equals 18 lots of 8.



## Short method of division

$$\begin{array}{r} 123 \text{ r}1 \\ 6 \overline{) 7139} \end{array}$$